RESEARCH HIGHLIGHTS

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HOUSING QUALITY AND CHILDREN'S SOCIOEMOTIONAL HEALTH

Introduction

This study was conducted to consider the possibility that the socioemotional health of Canadian children—measured as the number of behaviour problems they manifest—is related to the physical quality and form of their housing. Some evidence from other countries suggests that poorer childhood mental health is related to poorer housing quality. This study examined typical Canadian children from households with a wide range of incomes in a medium-sized francophone city (Québec) and a medium-sized anglophone city (Victoria).

Method

All 95 children, between the age of 9-12, who were recruited from public schools in Victoria and Québec City were independently assessed on a standard behaviour problem inventory by their school teacher and by one of their parents. The average family income of these children was about average for the cities suggesting that participating households were at least typical in their range of socioeconomic status.

The measurement instruments included the Children's Behaviour Inventory, the housing checklist and the housing interview, as well as certain demographic variables.

Trained assessors visited the children's residences and rated them and their immediate neighbourhood on a checklist of 245 physical features. The checklist included maintenance items for every room. The main items, which varied slightly to suit the function of each room, included exposed wiring, clutter, cleanliness, cracks, water damage, flooring odors and views. The checklist also included 14 items for the exterior of the residence, such as the condition of the walls, outside stairs and septic tank (if any). Finally, six checklist items assessed the physical condition of the immediate neighbourhood: the size and traffic level, the condition of the sidewalk, litter on the block and the general exterior condition of neighbouring houses.

One of each child's parents was also interviewed about 65 other physical aspects of the child's residence and neighbourhood that would not be noticed in a one-time walkthrough. These included all the rooms and items such as problems with drains, ranges, furnaces, insects and rodents. The interview also covered the number of people who lived in each room and in the house, as well as crowding. The parents were asked whether the child had a place for retreat and a designated play area. Finally, the parents were questioned about the neighbourhood; whether it seemed in their opinion to be safe, how far away were the nearest playground and elementary school located and if they interacted often with the neighbours.

The study was designed to consider potential moderating factors (that is, possible reasons of behaviour problems are associated with poorer housing without being the cause). Ten factors independent of the building itself may moderate the children's socioemotional outcomes, such as:

- household population density;
- child's gender;
- family income;
- number of children living at home;
- length of residence;
- city (Victoria versus Québec City);
- married versus single parents;
- whether the family was a blended one or not;
- parent's education;
- parent's age.

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The study also considered potential nonlinear relations (that is, connections between features of housing and behaviour problems that do not show a straight-line relation, but curvilinear relations such as a U-shaped or inverted U-shaped relation).

Results

The reliability (internal consistency) of the Children's Behaviour Inventory was examined and found to be excellent. Several reliable indices of housing quality were created from the 310 items in the housing checklist and interviews.

The children lived in three main housing forms: single-family houses, attached (duplex) houses and multi-unit apartments or condominiums. Their scores on the behaviour problem inventory were compared for these three housing forms, and although there were small absolute differences in the means, none of these differences were statistically different ($P > 0.10$). Thus, children's behaviour problems were analyzed without regard for their housing form.

The children, on average, were viewed by their parents and teacher as having few mild behaviour problems, as might be expected for a group of typical children. The sample included some children who had no reported problems, but the average child had about five minor problems, according to their parents, and about 2.5 according to their teachers. The parents reported more problems for their children than did the teachers (presumably they see their children more and know them better). However, the parents and teachers did rank-order the children fairly similarly: the correlation between the independent assessments of the parents and teachers was significant ($r = 0.50, P < 0.01$).

The relation between housing quality and children's behaviour problems were then computed (see Table 1). These were done for parent, teacher and combined behaviour ratings in relation to each room in the residence, the residence as a whole based on the checklist and the neighbourhood. The number of children's behaviour problems, as assessed by the parents, were found to be significantly related to the physical condition of the child's bedroom, the kitchen, the living room, the main bathroom and to the overall condition of the residence's interior (see Figure 1) and the general physical condition of the neighbourhood (see Figure 2). In all of these instances, children in rooms, residences and neighbourhoods with more physical problems manifested more behaviour problems.

Table 1: Correlations between residential housing quality and children's behaviour problems

	Assessments of Children's Behaviour		
Environment	***CBQ-Teacher**	***CBQ-Parent**	***CBQ-Total**
Basement	0.14	0.13	0.14
Kitchen	-0.14	0.28**	-0.01
Eating Area/Dining Room	0.08	0.07	0.06
Target Child's Bedroom	0.13	0.28**	0.16
Bedroom 2	-0.18	0.22	-0.07
Bedroom 3	-0.05	-0.02	0.04
Bathroom 1	0.06	0.28**	0.13
Bathroom 2	0.15	0.06	0.12
Living Room	-0.00	0.32**	0.11
Family Room	0.10	0.03	0.01
Entire Residence	0.05	0.39**	0.16
Neighbourhood	0.24	0.28**	0.31**

Note: Parents' ratings (CBQ-P) are based on all 95 cases; teachers' (CBQ-T) and combined ratings (CBQ-Total) are based on 68 cases; it was impossible to obtain teacher ratings for 27 children in Québec.

*CBQ - Children's Behaviour Questionnaire

Figure 1: Children's behaviour problems and the physical quality of the residence

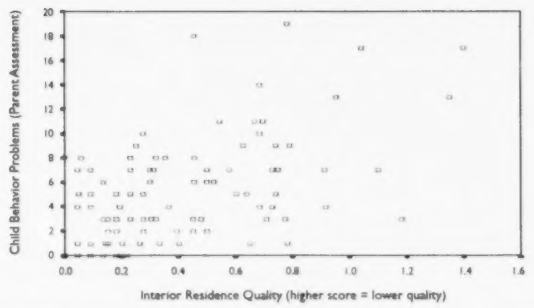
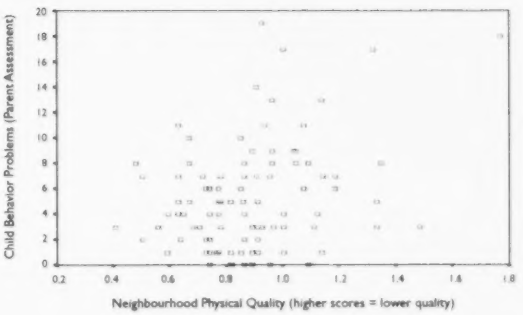


Figure 2: Children's behaviour problems and the physical quality of the neighbourhood



Next, the children's socioemotional health, as reflected in their behaviour problems, was predicted from the housing and neighbourhood quality scales. The purpose of this exercise was not to imply a causal relation, which would only be defensible had we been able to randomly assign children to different housing qualities. Instead, the purpose was to estimate how much of the variation in the children's behaviour problems could be related to housing environment aspects.

These analyses show that housing and neighbourhood quality have a strong correlation with child behaviour problems and account for 12.7 per cent of the variance in the behaviour problems of children. This may not seem like a large influence, but children's behaviour problems include many determinants, and it is likely that none of them alone are particularly potent causes. The magnitude of the relation between the quality of the child's residential environment and the children's socioemotional health may be approximately compared, to use an easily envisioned example, to the magnitude of the average difference in height between girls aged 14 and 18; that is, a clearly noticeable difference if one were to look at two long rows of girls, one of each age. In fact, the present effect is slightly larger than that difference, perhaps equal to the average difference in height of 13- versus 18-year-old girls. In the realm of social science, it is reasonable to label this as a medium to large effect. In sum, children's socioemotional problems are related to the physical quality of their environments in a not-inconsequential way.

This study considered 10 possible moderators. Standard methods of evaluating the potency of these moderators were used. The simple outcome of these analyses was that none of the moderators were significant. That is to say, the relation between children's behaviour problems and the two main housing quality variables (general condition of the house interior and physical quality of the neighbourhood) were no less true for any level or variation of the 10 potential moderators. This suggests that the moderately strong relation between housing quality and children's socioemotional health is robust (stable) across at least 10 social, economic and demographic conditions.

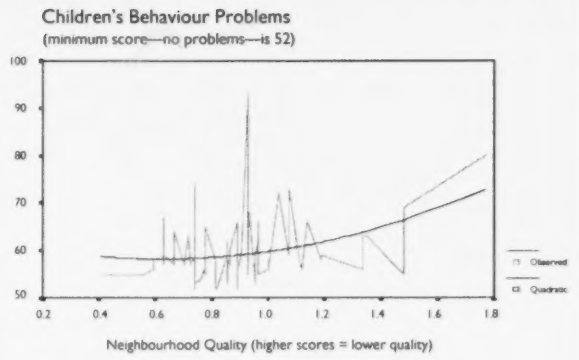
Also, children's behaviour problems could be related to housing or neighbourhood quality in a curvilinear fashion. To consider this possibility, curve-fitting analyses were conducted, specifically to search for significant quadratic patterns, that is, U-shaped or inverted-U-shaped relations. Only one of these housing quality variables showed a significant curvilinear relation with children's behaviour problems. As the physical quality of the neighbourhood decreased, the frequency of behaviour problems increased, but not in a strict linear fashion as shown in Figure 3. Rather, it appears that problems are relatively constant over the better half of the range of neighbourhood quality, but as neighbourhood quality falls below average, behaviour problems rise rapidly.

Discussion

The study shows that there are important connections between housing quality and children's socioemotional health, as measured in terms of behaviour problems. Certain implications for housing planning are apparent. In general, if there is a causal relation between physical housing and/or neighbourhood quality and children's socioemotional health, then improvements in housing are warranted. Given Figure 3, which shows that the effect begins to accelerate at lower levels of neighbourhood quality, the suggestion would be that more effort is required to improve the lower levels of neighbourhood physical quality.

Most studies of children's behaviour problems focus on social factors. This study suggests that such problems are related to physical decay or deterioration in children's

Figure 3: Curvilinearity between behaviour problems and neighbourhood quality



housing and neighbourhoods. Thus, this study lends credence to the possibility that children's physical settings have their own unique (but unfortunate) effect on mental health when they are sub-standard. Multiplied by the large number of children across Canada who live in sub-standard housing, this possibility would have a high impact on Canada's socioemotional health.

We must caution that conclusions from this study must be considered preliminary. First, causal conclusions cannot be drawn because children were not randomly assigned to better and worse housing. Second, the study was conducted in only two cities, and although a wide range of housing was used, both cities are relatively attractive and well-regarded. The study should be replicated in cities of different sizes and of lower overall reputation. Nevertheless, the study empirically demonstrates that there are statistically significant connections between housing quality and the socioemotional health of Canadian children, and that these connections are not likely due to other obvious factors such as income and educational level of the parents. Third, this study focused on children who did not demonstrate serious behaviour problems; in general, these children had relatively few problems. Thus, conclusions should not be generalized to children with more severe behaviour problems. However, the study does allow cautious generalization to most Canadian children in the 9-12 years old group, those who do not suffer from very low levels of daily functioning.

On the other hand, we investigated whether the association is moderated by 10 possible non-building factors as income, education, child gender, etc., and found that none were significant moderators. This suggests that the relation between housing quality and children's socioemotional health is not explained by any of these 10 potential moderating factors. It may indicate without proving it, that housing quality itself is somehow strongly related to children's behaviour problems.

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